

REQUEST FOR PROPOSAL

The Michigan Department of Transportation (MDOT) is seeking professional services for the project contained in the attached scope of services.

If your firm is interested in providing services, please indicate your interest by submitting a Proposal, Proposal/Bid Sheet or Bid Sheet as indicated below. The documents must be submitted in accordance with the latest "Consultant/Vendor Selection Guidelines for Service Contracts" and "Guideline for Completing a Low Bid Sheet(s)", if a low bid is involved as part of the selection process. **Referenced Guidelines are available on MDOT's website under Doing Business > Vendor/Consultant Services > Vendor/Consultant Selections.**

RFP SPECIFIC INFORMATION

☒ BUREAU OF HIGHWAYS ☐ BUREAU OF TRANSPORTATION PLANNING ** ☐ OTHER

THE SERVICE WAS POSTED ON THE ANTICIPATED QUARTERLY REQUESTS FOR PROPOSALS

☒ NO ☐ YES DATED _____ THROUGH _____

<input type="checkbox"/> Prequalified Services – See page ____ of the attached Scope of Services for required Prequalification Classifications.	<input checked="" type="checkbox"/> Non-Prequalified Services - If selected, the vendor must make sure that current financial information, including labor rates, overhead computations, and financial statements, if overhead is not audited, is on file with MDOT's Office of Commission Audits. This information must be on file for the prime vendor and all sub vendors so that the contract will not be delayed.
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☐ **Qualifications Based Selection** – Use Consultant/Vendor Selection Guidelines

For all Qualifications Based Selections, the section team will review the information submitted and will select the firm considered most qualified to perform the services based on the proposals. The selected vendor will be contacted to confirm capacity. Upon confirmation, that firm will be asked to prepare a priced proposal. Negotiations will be conducted with the firm selected.

****For RFP's that originate in Bureau of Transportation Planning only**, a priced proposal must be submitted at the same time as, but separate from, the proposal. Submit directly to the Contract Administrator/Selection Specialist, Bureau of Transportation Planning (see address list, page 2). The priced proposal must be submitted in a sealed envelope, clearly marked "**PRICE PROPOSAL.**" The vendor's name and return address **MUST** be on the front of the envelope. The priced proposal will only be opened for the highest scoring proposal. Unopened priced proposals will be returned to the unselected vendor(s). Failure to comply with this procedure may result in your priced proposal being opened erroneously by the mail room.

For a cost plus fixed fee contract, the selected vendor must have a cost accounting system to support a cost plus fixed fee contract. This type of system has a job-order cost accounting system for the recording and accumulation of costs incurred under its contracts. Each project is assigned a job number so that costs may be segregated and accumulated in the vendor's job-order accounting system.

☐ **Qualifications Review / Low Bid** - Use Consultant/Vendor Selection Guidelines. See Bid Sheet Instructions for additional information.

For Qualification Review/Low Bid selections, the selection team will review the proposals submitted and post the date of the bid opening on the MDOT website. The notification will be posted at least two business days prior to the bid opening. Only bids from vendors that meet proposal requirements will be opened. The vendor with the lowest bid will be selected. The selected vendor may be contacted to confirm capacity.

☒ **Best Value** - Use Consultant/Vendor Selection Guidelines. See Bid Sheet Instructions below for additional information. The bid amount is a component of the total proposal score, not the determining factor of the selection.

☐ **Low Bid** (no qualifications review required - no proposal required.) See Bid Sheet Instructions below for additional instructions.

BID SHEET INSTRUCTIONS

A bid sheet(s) must be submitted in accordance with the "Guideline for Completing a Low Bid Sheet(s)" (available on MDOT's website). The Bid Sheet(s) is located at the end of the Scope of Services. Submit bid sheet(s) separate from the proposal, to the address indicated below. The bid sheet(s) must be submitted in a sealed manila envelope, clearly marked "**SEALED BID.**" The vendor's name and return address **MUST** be on the front of the envelope. Failure to comply with this procedure may result in your bid being opened erroneously by the mail room and the bid being rejected from consideration.

PROPOSAL SUBMITTAL INFORMATION

REQUIRED NUMBER OF COPIES FOR PROJECT MANAGER 5	PROPOSAL/BID DUE DATE 1/15/09	TIME DUE 5:00PM
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PROPOSAL AND BID SHEET MAILING ADDRESSES

Mail the multiple proposal bundle to the MDOT Project Manager or Other indicated below.

☒ MDOT Project Manager ☐ MDOT Other

Greg Krueger
Michigan Department of Transportation
8885 Ricks Road
Lansing, MI 48910

Mail one additional stapled copy of the proposal to the Lansing Office indicated below.

Lansing Regular Mail	OR	Lansing Overnight Mail
<input checked="" type="checkbox"/> Secretary, Contract Services Div - B470 Michigan Department of Transportation PO Box 30050 Lansing, MI 48909		Secretary, Contract Services Div - B470 Michigan Department of Transportation 425 W. Ottawa Lansing, MI 48933
<input type="checkbox"/> Contract Administrator/Selection Specialist Bureau of Transportation Planning B470 Michigan Department of Transportation PO Box 30050 Lansing, MI 48909		Contract Administrator/Selection Specialist Bureau of Transportation Planning B470 Michigan Department of Transportation 425 W. Ottawa Lansing, MI 48933

GENERAL INFORMATION

Any questions relative to the scope of services must be submitted by e-mail to the MDOT Project Manager. Questions must be received by the Project Manager at least four (4) working days prior to the due date and time specified above. All questions and answers will be placed on the MDOT website as soon as possible after receipt of the questions, and at least three (3) days prior to the RFP due date deadline. The names of vendors submitting questions will not be disclosed.

MDOT is an equal opportunity employer and MDOT DBE firms are encouraged to apply. The participating DBE firm, as currently certified by MDOT's Office of Equal Opportunity, shall be listed in the Proposal

MDOT FORMS REQUIRED AS PART OF PROPOSAL SUBMISSION

5100D – Request for Proposal Cover Sheet
5100G – Certification of Availability of Key Personnel
5100I – Conflict of Interest Statement

(These forms are not included in the proposal maximum page count.)

Michigan Department of Transportation

**SCOPE OF SERVICE
FOR
DESIGN SERVICES**

CONTROL SECTION(S): 84900

JOB NUMBER(S): 104453

PROJECT LOCATION:

Bay, Metro, North, Southwest, and University Regions

PROJECT DESCRIPTION:

Provide real-time traffic data for selected freeway routes in the State of Michigan for use by the Michigan Department of Transportation (MDOT) and its partners.

ANTICIPATED SERVICE START DATE: April 1, 2009

ANTICIPATED SERVICE COMPLETION DATE: April 1, 2012

PRIMARY PREQUALIFICATION CLASSIFICATION(S):

N/A

SECONDARY PREQUALIFICATION CLASSIFICATION(S):

N/A

DBE REQUIREMENT: N/A

MDOT PROJECT ENGINEER MANAGER:

Greg Krueger
ITS Statewide Program Manager
Michigan Department of Transportation
8885 Ricks Road
Lansing, MI 48910
(517) 636-5009
KruegerG@michigan.gov

PART I - GENERAL INFORMATION

I-A PURPOSE

The purpose of this RFP is to procure a subscription for real-time traffic data for selected freeway routes in the State of Michigan by the Michigan Department of Transportation (MDOT) for use by MDOT and its partners.

Price Proposal requirements

A price proposal shall be submitted separate from the technical proposal. It shall separate mobilization (one-time) costs from data subscription (recurring) costs for the base contract described herein. As an option, rates shall also be provided per centerline mile that are applicable to additional miles of coverage should it be expanded beyond the baseline coverage for both mobilization and subscription data. Different rates may apply to different routes according to factors such as functional classification, VMT, etc. The source of any data used to establish rates must be provided in the price proposal.

The price proposal shall follow the format in Appendix A. Additional tables that itemize costs may be included, if desired. All costs shall be in U.S. dollars.

Oral Presentations

MDOT reserves the right to require bidders to make an oral presentation to clarify items in their technical proposal, prior to making a selection. If oral presentations will be conducted, they will be held at a time and location to be determined by MDOT. MDOT will not be responsible for any travel or accommodation costs of the Contractor.

Questions

Questions relative to the scope of services must be submitted by e-mail to the MDOT project manager. Any questions must be asked at least three working days prior to the due date and time specified above. All questions and their answers will be placed on the MDOT website as soon as possible after receipt of the questions. The names of vendors submitting questions will not be disclosed.

Evaluation Criteria

Proposals will be scored using the following criteria. The selected proposal will be the one considered to represent the best value to MDOT based on the technical and cost proposals, i.e., the best combination of score and price.

Criterion	Max. Points
Contracting firm capabilities and references	20
Assigned staff qualifications	10
Compliance with requirements	30
Technical approach and quality assurance approach	20
Proposal Cost Estimate	25
Total	105

The above criterion will be scored according to a tiered scoring matrix based on how well the contracting firm meets each criterion as described in the table below.

Criterion	Scoring Criteria	Points
Contracting firm capabilities and references	The contracting firm has more than one deployment with all positive references. The contracting firm has a demonstrated track record of meeting or exceeding expectations.	20
	The contracting firm has one deployment with a positive reference which has met or exceeded expectations.	10
	The contracting firm has no successful deployments and does not have a proven track record.	0
Assigned Staff Qualifications	The contracting firm has exceptional staff qualifications some of whom are national experts in traffic data collection.	10
	The contracting firm has adequate staff qualifications.	7
	The contracting firm has no staff qualifications	0
Compliance with Requirements	30 requirements total, maximum of 1 point per requirement	
	Requirement is fully met or exceeded	1
	Requirement is partially met	.5
	Requirement is not met	0

Technical Approach and Quality Assurance Approach	The proposal has an excellent and proven technical approach and goes above and beyond in regards to its approach to quality assurance	20
	The proposal has an adequate and proven technical approach and quality assurance approach	15
	The proposal has adequate and unproven technical approach and an un proven quality assurance approach	10
	The proposal has an insufficient or unproven technical approach and no quality assurance approach	0
Proposal Cost Estimate	The proposal has the lowest reviewed cost estimate in regards to all received proposals	25
	The proposal has a competitive cost estimate between the highest and lowest cost proposals. Points are assigned on a linear scale between the highest and lowest cost.*	Variable distributed between $0 < P < 20$
	The proposal has the highest cost	0

* Points applied on a linear basis abide by the following example: Three proposals are received. The lowest cost proposal is \$1. The highest cost proposal is \$5. The third proposal received is \$2. The low (\$1) proposal receives 25 points. The high (\$5) proposal receives 0 points. The \$2 proposal receives 19 points. The 19 points are calculated using the following equation:

Points = $25 \times [(\text{high} - \text{cost}) / (\text{high} - \text{low})]$, or

Points = $25 \times [(\$5 - \$2) / (\$5 - \$1)] = 25 \times 3 / 4 = 18.75$ (rounded to 19)

PART II – WORK STATEMENT

II-A BACKGROUND

The purpose of this RFP is to procure a subscription for real-time traffic data for selected freeway routes in the State of Michigan by the Michigan Department of Transportation (MDOT) for use by MDOT and its partners. This traffic data may come from a variety of sources and bidders are encouraged to propose innovative approaches to traffic data collection that fulfill the requirements of MDOT as detailed in this RFP. It is intended that this data will support the provision of inter-city traveler information and support MDOT's ability to manage traffic in the coverage area. The successful bidder will enter into an agreement with MDOT for the provision of real-time traffic data for three years on routes specified in this RFP, with the potential for geographic expansion during the contract term.

II-B PROJECT DESCRIPTION

Work shall conform to current MDOT, FHWA, and AASHTO practices, guidelines, policies, and standards (i.e., Road Design Manual, Standard Plans, Roadside Design Guide, A Policy on Geometric Design of Highways and Streets, Michigan Manual of Uniform Traffic Control Devices, and other emerging standards, concepts etc.).

II-C DESCRIPTION OF WORK

MDOT's ITS program has historically focused on the State's urban centers of Detroit and Grand Rapids where the state's two existing traffic management centers (TMCs) and the vast majority of ITS assets are located. Beyond these two urban centers, however, MDOT is expanding its ITS footprint to other reaches of the State, recognizing that safe and efficient recreational and inter-city travel is critical to the state's economy. A project is underway to evaluate and identify ITS solutions for highways connecting several regions within the State outside the major urban areas. With the prospect of an Advanced Traveler Information System (ATIS) being deployed within the study area there is the potential to provide better traveler information to assist drivers with making more informed route choices. In order for such a system to function properly the necessary data must be collected to make accurate and timely traffic management decisions. These decisions are made possible through the use of innovative nonintrusive traffic data collection techniques.

There are two primary objectives of this procurement:

The first objective of the project is for the acquisition of a subscription-based real-time, travel time service for select MDOT routes. The data being supplied should be accurate, real-time, and reliable and must reflect actual traffic conditions. It is envisioned that this data will enhance MDOT operations and provide for a more informed and reliable driving experience through the dissemination of information. The accuracy and timeliness of the data will play a major role in the public perception of the system. Therefore, in order for the system to be effective the data reported must reflect the actual conditions. The provided traffic data will be displayed in real-time on a publicly available web-based traveler information system such as the MI-Drive website (<http://www.michigan.gov/drive>). Other websites which may display real time traveler information include the GCM Gateway and RCOC. The traffic data will also be used to calculate travel times for MDOT selected routes on dynamic message signs (DMS) in real time.

The second objective is for access to a historical archive of traffic data for operational planning and research purposes. The regional TMCs and statewide departments will utilize the traffic data to enhance their operations to include guidance with decision making in response to traffic

impacting events, both planned and unplanned. The historical data will be a rich source of traveler information and will also offer invaluable inputs for existing and future traffic management tools, including trip planning based on historical data.

System Coverage Area

This section identifies the MDOT proposed coverage area. Phase 1 is currently the baseline coverage area and MDOT may decide to expand coverage under this contract during the contract term to Phase 2 and 3. As the basis for the technical proposal the Contractor shall use the roadway network identified in the following tables and maps. It should be noted that Phases 2 and 3 represent proposed likely expansion of the system and the actual geographic coverage area may differ as a result of MDOT planning needs. The Contractor shall prepare separate cost estimates for all three phases. However, costs for phases 2 and 3 may not be included in the overall proposal scoring.

The Contractor shall propose the coverage system on a segment by segment basis to include freeways and ramps. Any variations or limitations between the proposer's coverage and that identified in Phase 1, 2 and 3 should be indicated by the Contractor and a reason given for the absence of coverage. The Contractor may also propose additional segments of coverage at no additional cost to MDOT. All of the facilities for the baseline system are controlled access facilities. The only exception to this is a portion of US-127 which may be added in Phase 2 that is a divided 4 lane highway; however there are no signalized intersections on this segment.

Table 1. Baseline (Phase 1) Coverage Routes

Road	Mileage	Start	End
I-96	65 Miles	MP 97	MP 162
I-75	59 Miles	MP 109	MP 168
I-475	17 Miles	Entire Length	
I-675	8 Miles	Entire Length	
I-69	27 Miles	MP 118	MP 145
US-10	15 Miles	I-75	Midland
US-23	47 Miles	MP 45	I-75 (approx. MP 92)
TOTAL:	238 Miles		

Table 2. Additional (Phase 2) Coverage Routes

Road	Mileage	Start	End
I-75	88 Miles	MP 168	MP 256
US-127	179 Miles	MP 70	MP 249
TOTAL:	267 Miles		

Table 3. Additional (Phase 3) Coverage Routes

Road	Mileage	Start	End
I-94	169 Miles	MP 0	MP 169
I-69	80 Miles	MP 38	MP 118
TOTAL:	249 Miles		

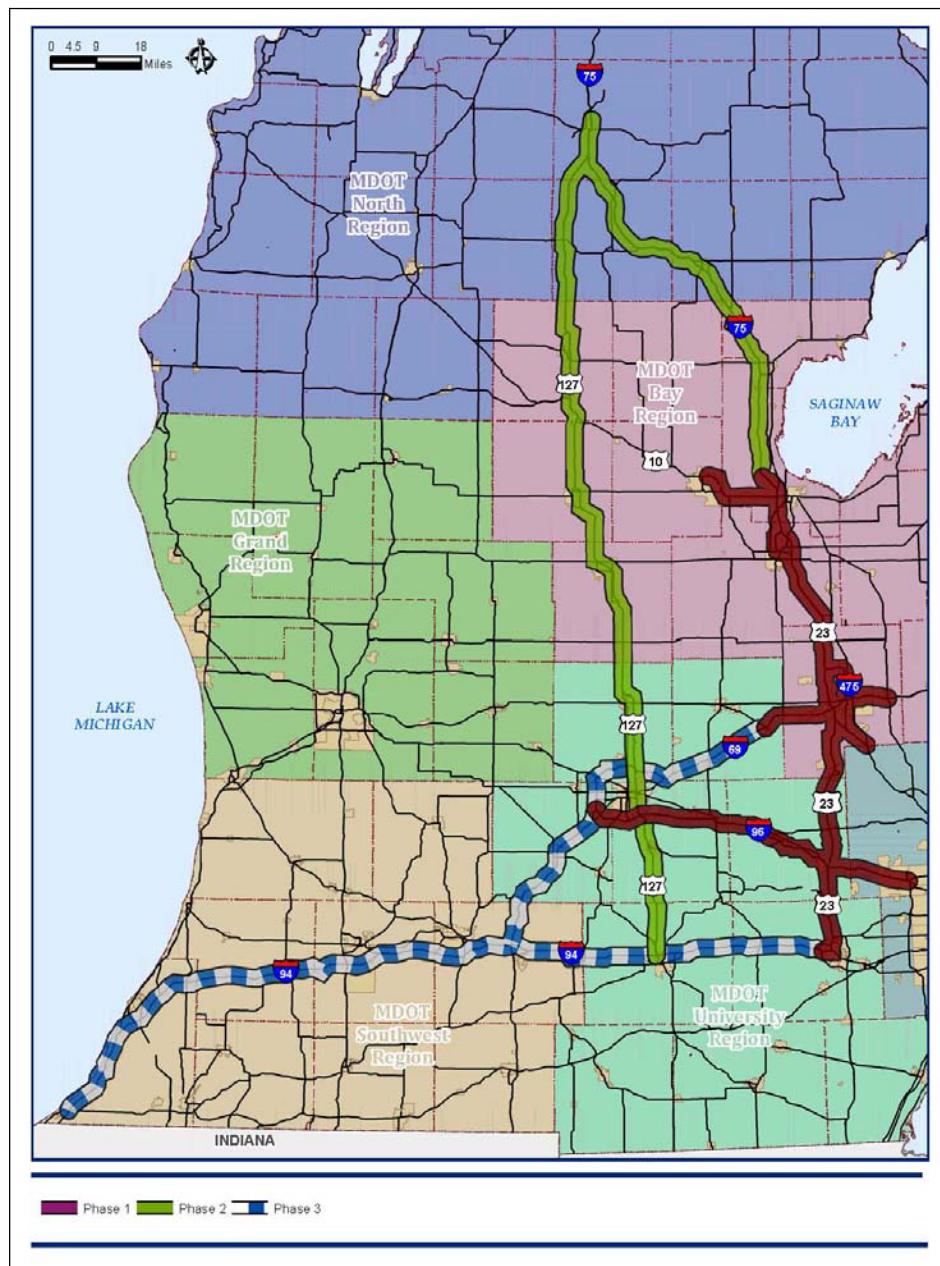


Figure 1. Phase 1, 2 and 3 Coverage Area

CONTRACTING AND PAYMENT

Independent Validation

The Contractor shall agree to cooperate with data validation either by MDOT or an independent contractor of the State's choosing. The independent validation tests may use any combination of floating car runs, detection technology or Bluetooth device tracking technology to verify Contractor data. At the start of the contract the Contractor shall supply MDOT with two (2) portable Bluetooth device tracking units which shall be BlueTrax (www.traffaxinc.com) or a similar product with similar capabilities. Additionally, the Contractor shall supply MDOT with two (2) travel time recorders with software such as the GeoStats GeoLogger™ with GeoStats TravTime™ software, the JAMAR RAC Plus III with WinRAC Plus software, or a product of similar capabilities. MDOT shall retain ownership of all validation equipment supplied by the Contractor and the Contractor shall also provide any training and instruction associated with the supplied equipment.

MDOT will enforce the data quality requirements and the quality targets included in this contract with testing. MDOT will impose data quality requirements short of contract termination for the first infraction. If validation tests indicate the Contractor has not met the data requirements for that particular time frame a percentage of or the entire payment for that period shall be retained by MDOT. If the Contractor does not meet the data validation requirements the following period, MDOT shall have the right to withhold further payment, renegotiate or terminate the contract. Included in Appendix B is a detailed metric as to how validation is to be accomplished and the associated payment penalties. The Contractor shall disclose any changes that may improve or reduce data quality including, but not limited to gaining or losing a key fleet of vehicles or a cellular carrier contract. In the event that a key data source becomes unavailable, data quality requirements will still remain in place.

Data Ownership

All data provided by the Contractor shall be available for full use by MDOT and its partners and consultants for any traveler information purposes including DMS, potential future 511 services, potential future VII applications, websites including, but not limited to, MI Drive, RCOC (<http://www2.rcocweb.org>), and GCM Gateway (<http://www.gcmtravel.com>), for archiving to be used in future MDOT planning and research, and for future unforeseen uses. MDOT cannot resell any data provided by the Contractor. The Contractor retains the right to use the collected data for any use including traveler information and reselling and archiving. In the event the Contractor resells or makes public data that employs MDOT-owned sensors, credit or recognition shall be given identifying MDOT in connection with the data. The data shall be available to other State and local government agencies within the State of Michigan and bordering state and local agencies, including those in Canada, without additional restrictions on its use, to include county road commissions, cities, MPOs and universities. Data may be made available to a consultant or systems integrator on the basis that the data is to be used strictly for planning and or engineering purposes to benefit the State. Non-MDOT agencies wishing to use the data may be subject to a non-disclosure clause. However, MDOT will not be held liable nor will they be responsible to develop or enforce a non-disclosure clause. All data shall be available for viewing in real time. The Contractor shall provide a daily set of data meeting the requirements described in Section 8 of this RFP to MDOT each 24 hours. In addition, at the end of each year while the contract is active the Contractor shall provide MDOT with a CD(s) or DVD(s) containing all of the collected data within that year in CSV format for continued use according to the conditions described above.

Valid Sources of Data

The Contractor shall clearly explain the proposed sources of data where they will apply, and how one or more will be used to derive a single estimate for each segment in each reporting period. MDOT will allow any combination of the following data sources:

- Real-time probe based data
- Historical data
- Forecasting or modeling
- Real-time infrastructure-based data (access to ROW according to MDOT standard requirements)

The Contractor may install infrastructure on MDOT right-of-way (ROW); however MDOT will not be responsible to maintain or pay for any infrastructure installed as part of this project; it will be the sole responsibility of the Contractor. MDOT will not pay for any operating costs or provide access to existing MDOT communications infrastructure/bandwidth for installed equipment. The Contractor shall be subject to all MDOT requirements for permitting and access to ROW. The MDOT contract manager shall be notified directly of any cases where ROW is accessed by the Contractor as part of this contract. At the termination of the contract, all ROW utilized by the Contractor shall be returned to its original condition at the expense of the Contractor. The Contractor may use real-time data from MDOT sensors in existing formats or schemas. Any additional processing or formatting will be the responsibility of the Contractor. The Contractor may have access to any historical archives of MDOT sensor data. In the event the Contractor is using data from MDOT sensors, the Contractor shall ultimately be held responsible for meeting all data requirements. MDOT is not liable for failed or inaccurate data from its detectors. In the event that the Contractor obtains new sources of data, these may be incorporated into the system at no additional cost to MDOT. Additionally, MDOT may make available to the Contractor new data sources where feasible.

Schedule, Length of Contract Time Period

The contract term shall be for three (3) years, contracted in one year-increments to meet internal MDOT funding requirements. MDOT reserves the option to extend the contract for up to two (2) additional individual one (1) year terms under the same terms and conditions originally agreed upon.

PROJECT RESPONSIBILITIES

Scope of Consultant Duties

The Contractor shall provide a Project Work Plan within ten (10) business days of notice to proceed. The Project Work Plan will include:

- A Project Schedule that outlines all necessary steps required to provide the real-time traffic data in this RFP. This includes the identification of interim deliverables and reviews required of MDOT. The schedule will include key milestones and the commencement date for the delivery of real-time traffic data feed will be part of the schedule.
- A Quality Assurance/Quality Control (QA/QC) Plan that describes the Contractor's plan for monitoring and maintaining data quality and coordination with MDOT and the MDOT independent validation Contractor.

The Contractor shall submit monthly progress reports by the fifth business day of the next month. Prior to the commencement of the real-time data feed, these progress reports shall provide the Contractor's status relative to the milestones in the Project Schedule. After the commencement of the real-time data feed, the Contractor shall submit monthly reports that include any key information affecting the quality, availability or reliability of the data feed in the previous month. For any issues that arise, the Contractor shall present a plan for how they will be resolved.

The project will begin with a formal kick-off meeting, either in person or via phone, to review the Project Work Plan and provide an opportunity for MDOT and the Contractor to share expectations for the project.

Real Time Traffic Data Requirements

The following is a matrix of the data requirements for prepared proposals. Respondents shall follow the response matrix format. If additional space is needed for explanation, supporting material may be appended and the location of that information shall be identified in the response comments cell. For each itemized requirement, the proposer shall assign one of the following response codes in the response code cell. The Response Codes are as follows:

- E:** Your proposal exceeds the stated requirement and goes above and beyond what is stated in the list of requirements. Please provide a detailed explanation within the response comments cell.
- F:** Your proposal fully complies with the stated requirement.
- P:** Your proposal partially complies with the stated requirement. Please provide a detailed explanation within the response comments cell
- N:** Your proposal does not comply with the stated requirement.

Item	Component	Requirement	Response Code	Response Comments
1.1	Data Format	<i>1.1.1</i> The real-time data shall be provided in XML format, using an MDOT approved schema.		
		<i>1.1.2</i> The real-time data shall be provided in CSV format		
		<i>1.1.3</i> The real-time data files shall be delivered via HTTP or other standard protocol		
1.2	Data Elements	<i>1.2.1</i> Raw segment speed in miles per hour to the nearest integer shall be a reported data element. This shall be “raw” data, without processing for smoothing.		
		<i>1.2.2</i> Smoothed segment speed in miles per hour to the nearest integer shall be a reported data element. At a minimum, the smoothing process shall cap speeds at the speed limit.		
		<i>1.2.3</i> Raw segment travel time to the nearest whole second shall be a reported data element. This shall be “raw” data, without processing for smoothing.		
		<i>1.2.4</i> Smoothed travel time to the nearest whole second shall be a reported data element. At a minimum, the smoothing process shall truncate travel times to not imply greater than speed limit travel.		
		<i>1.2.5</i> A status flag shall be associated with each segment and reporting interval indicating the source and confidence level of the data.		
		<i>1.2.6</i> The status flag shall indicate what percentage of the data uses real-time detector, real-time probe, historic, forecasted and/or modeled data		

Item	Component	Requirement	Response Code	Response Comments
1.3	Definition of Segments	<i>1.3.1</i> Segment definition shall be based on logical breaks in facilities where one would expect the potential for differing traffic conditions such as an interchange, a lane drop or a major at grade intersection.		
		<i>1.3.2</i> At a minimum freeway segments shall break at each interchange.		
		<i>1.3.3</i> Segment definitions shall at a minimum contain beginning and ending latitude, longitude, heading, common name or route number, and a unique identifier (such as a TMC code).		
		<i>1.3.4</i> A segment definition file shall be provided and updated as changes are made. (for example, when ramps are added and geometry changes)		
		<i>1.3.5</i> Segment definitions shall conform to applicable standards or comparable open and published data standards.		
		<i>1.3.6</i> Segmentation shall be translatable to the Michigan Geographic Framework (see http://www.michigan.gov/cgi).		
		<i>1.3.7</i> The segment definition file shall be in XML format in an MDOT –approved schema.		
		<i>1.3.8</i> The segment definition file shall be in CSV format		
1.4	Route Coverage	<i>1.4.1</i> The Contractor shall provide traffic data for the baseline coverage area identified in Section 5		
1.5	Update Interval	<i>1.5.1</i> The data shall be updated once every five (5) minutes (minimum).		

Item	Component	Requirement	Response Code	Response Comments
		<i>1.5.2</i> The data shall be updated once every three (3) minutes (desired).		
1.6	Data Forecasts	<i>1.6.1</i> The Contractor shall provide short-term forecasts of travel times over long distance routes which factor in the anticipated change in traffic conditions while a vehicle is en route.		
1.7	Data Access and Archive	<i>1.7.1</i> The Contractor shall provide MDOT with a set of raw (not smoothed or capped) travel time data collected over the past 24 hours delivered once each 24 hours. The data will be delivered electronically through a process agreed upon by the Contractor and MDOT and meeting the requirements described in this matrix.		
		<i>1.7.2</i> At the end of each contract year, the Contractor shall provide MDOT with a CD(s) or DVD(s) containing all of the collected data within that year in CSV format.		
2.1	Accuracy	<i>2.1.1</i> Absolute average speed error shall be evaluated individually in separate speed buckets of 0-30 MPH, 31-50 MPH and 51+ MPH. The average speed error shall be within +/- 10 MPH for each speed bucket.		
2.2	Completeness	<i>2.2.1</i> The Contractor shall provide data quality indicators on completeness for each speed bucket. Completeness shall be reported as the percent of segments with data per update interval.		
		<i>2.2.2</i> Traffic data shall be provided for at least 95% of all segments at all required time reporting intervals.		

Item	Component	Requirement	Response Code	Response Comments
2.3	Data Availability	2.3.1 The Contractor shall provide traffic data 24 hours a day 7 days a week, with allowances made for up to 40 hours of scheduled system maintenance per year during off hours. The Contractor shall not perform scheduled maintenance without prior approval from MDOT 24 hours in advance.		
		2.3.2 Apart from scheduled downtime, the Contractor shall maintain an overall data availability of at least 99.5 percent in each calendar month of the contract.		
2.4	Latency	2.4.1 The Contractor shall maintain a maximum data latency of ten (10) minutes or less. (minimum)		
		2.4.2 The Contractor shall maintain a maximum data latency of five (5) minutes or less. (desired)		

III- A **CONSULTANT PAYMENT - Milestone:**

Compensation for this project shall be on a **milestone** basis. Compensation shall be divided into payments for the completion of a portion of the services (deliverables). The contract shall be for a subscription service and no additional payment will be made for infrastructure. Each payment shall be attached to monthly milestones designated by the delivery of a complete set of traffic data. The first milestone payment along with all associated start-up costs shall not be made until the first completed month of data is delivered. As part of the proposal the Contractor shall propose costs for start-up and system operations which may include the validation equipment.

The MDOT Project Manager may authorize payment if a milestone is delayed due to circumstances beyond the Consultant's control.

All billings for services must be directed to the Department and follow the current guidelines. The latest copy of the "Professional Engineering Service Reimbursement Guidelines for Bureau of Highways" is available on MDOT's website. This document contains instructions and forms that must be followed and used for billing. Payment may be delayed or decreased if the instructions are not followed. Please note: Labor supporting documentation must be submitted with your billing for all labor performed on a milestone basis project.

Payment to the Consultant for services rendered shall not exceed the maximum amount unless an increase is approved in accordance with the contract with the Consultant. Typically, billings must be submitted within 60 days after the completion of services for the current billing. The final billing must be received within 60 days of the completion of services. Refer to your contract for your specific contract terms.

Appendix A – Cost Proposal

Phase 1: Base contract costs (238-miles)

	Year 1	Year 2	Year 3	Year 4 (optional)	Year 5 (optional)
Mobilization (one-time)	\$				
Data (recurring)	\$	\$	\$	\$	\$
Total 3-year contract cost					\$

Phase 2: Total costs (267-miles)

	Year 1 ¹	Year 2	Year 3	Year 4 (optional)	Year 5 (optional)
Mobilization (one-time) ²		\$			
Data (recurring)		\$	\$	\$	\$
Total 3-year contract cost					\$

Phase 3: Total costs (249-miles)

	Year 1 ¹	Year 2 ¹	Year 3	Year 4 (optional)	Year 5 (optional)
Mobilization (one-time) ²			\$		
Data (recurring)			\$	\$	\$
Total 3-year contract cost					\$

Optional Rates (per centerline mile, applicable beyond specified coverage area)³

	Year 1	Year 2	Year 3	Year 4 (optional)	Year 5 (optional)
Optional Mobilization (per centerline mile) ²	\$	\$	\$	\$	\$
Optional Data (per centerline mile)	\$	\$	\$	\$	\$

¹ It should be assumed Phase 2 will be added in Year 2 and phase 3 shall be added in year 3 of the contract. Although MDOT reserves the right to add this mileage at other times or not at all.

² Mobilization will only be paid once per centerline mile of coverage. Rates under “Year 1” will be for mileage added in Year 1. The same follows for Year 2 and Year 3.

³ The Contractor is free to propose an alternative rate structure for optional expansion routes, including different rates for freeways, arterials, low/high VMT routes, etc.

Appendix B – Validation Process and Payment Penalties

In accordance with section 6.1 of the RFP, data validation is required and subsequently if the data requirements are not met then penalties will be assessed. The following section details how these penalties are assessed and the necessary actions that MDOT may take to provide the best possible traffic data for the State. Data validation shall be tested based on several components, each with their respective percentage. If the subscription data does not fall within the allotted limits of the ground truth validation data a percentage of the maximum award fee shall be withheld up to 100 percent of the maximum award fee for that component. Validation will be performed on the raw (non-smoothed) data provided by the Contractor.

Award Fee Component:	Max Reduction	Actual Reduction
1. Data Availability < 99.5%	40 %	%
2. Data Accuracy +/- 10 MPH	40 %	%
3. Data Latency > 5 Minutes*	20 %	%
Total Reduction		%
Max Payment		\$ (from cost proposal)
Actual Payment		\$ (max payment X total reduction)

* - A latency of 5 minutes or less is desired, however if the selected offer is only able to propose a maximum latency of 10 min, this payment structure shall be modified to not penalize a latency under 10 minutes.

Data Availability:

The Contractor is required to maintain overall data availability on a per monthly basis of 99.5 percent, which does not include any scheduled maintenance. If MDOT should receive 99.5 percent of all the data reports for a particular month the vendor shall be award the maximum allotted amount reserved for the data availability component. Should the Contractor report less than 99.5 percent of the total reports for that particular month the maximum monthly payment shall be reduced based on the following table.

Percent Available	Reduction
99.5 or greater	0 %
99.49 or less	40 %

Data Accuracy:

System accuracy shall be evaluated based on the average absolute speed error. Section 2.1 of the RFP requirements states that the shall be +/- 10 MPH within each of the three ranges of speeds. The calculation method for the average absolute error is as follows:

Let: A_{ij} = Speed data for link i at time j from the data service.
 B_{ij} = Corresponding speed from the validation data
Average Absolute Speed Error = $\text{mean}(|A_{ij} - B_{ij}|)$

Ground truth speed data shall be collected at various times on MDOT selected segments which shall coincide with the Contractor's segment definitions. These segments will then be compared with the Contractors reported data to verify its accuracy. For all evaluation data the speeds shall be rounded to the nearest whole integer. The following table is provided as a guide for the evaluation process.

Sample No.	Date	Day	Time	Length (mi)	Route No.	Limits		Data Comparison (MPH)		
						From	To	Contractor Data	Validation Data	Error
1	MM/DD/YY	Mon	00:00	0	#	A	B	0	0	0
2	MM/DD/YY	Mon	00:00	0	#	B	C	0	0	0
3	MM/DD/YY	Mon	00:00	0	#	C	D	0	0	0
4	MM/DD/YY	Mon	00:00	0	#	D	F	0	0	0
5	MM/DD/YY	Mon	00:00	0	#	F	G	0	0	0
6	MM/DD/YY	Mon	00:00	0	#	G	H	0	0	0
Average of the absolute values of the errors:										Avg

Average Difference	Reduction
+/- 10 or less MPH	0 %
+/- 10 or greater MPH	40 %

In addition to ensuring the average reported data is with an acceptable range, anomalies may occur in the reported data. These will be defined as instances when errors exceed 20 MPH. These anomalies may not raise the average enough to be greater than +/- 10 MPH. However, when reporting travel times to the public it is imperative that these anomalies not be reported at all. Therefore if data anomalies of 20 MPH or greater are reported then a percent reduction off the maximum attainable amount is incurred. The penalty shall be assessed on a percent basis which the following table identifies.

% Of Data Records with Absolute Error > 20 MPH	Percent Reduction
0-5 %	5 %
5-10 %	10 %
10-20 %	20 %
Greater than 20 %	40 %

Data Latency:

System latency shall be validated using the three speed buckets outlined in the requirements table. These speed buckets are as follows: of 0-30 MPH, 31-50 MPH and 51+. The determiner of latency will be the time it takes for the subscription data to recognize a change from one bucket to the next, as compared to ground truth data. The following table outlines the percent reduction off the maximum available payment for this component based on latency.

Time Difference	Percent Reduction
5 Minutes or less	0 %
5+ Minutes	20 %

* - A latency of 5 minutes or less is desired, however if the selected offer is only able to propose a maximum latency of 10 min, this payment structure shall be modified to not penalize a latency under 10 minutes.

Appendix C – Definitions

Anomaly: An episodic extreme error or data “spike.”

Average Absolute Speed Error is the absolute value of the difference between the mean speed reported from the data service and the mean speed provided by validation procedures for a specified time period or polling interval.

Baseline System: The network of roadways identified in the baseline coverage area section.

Business Day: whether capitalized or not, shall mean any day other than a Saturday, Sunday, or State-recognized legal holiday from 8:00 AM Eastern Time through 5:00 PM Eastern Time unless otherwise stated.

CSV: Comma-separated value, a nonproprietary comma-delimited file used to transfer data into spreadsheet programs

Data Accuracy: Data accuracy is the comparison of collected data with the independently collected ‘ground truth’ data.

Data Availability: The percentage of measurement intervals (combination of space and time) when traffic data estimates are delivered.

Data Completeness: The percentage of segments with data per update interval.

Days: means calendar days unless otherwise specified.

Deliverable: means physical goods and/or commodities as required or identified by a Statement of Work.

Exceeds: Improves upon.

GCM Gateway: Traveler information portal for the Gary-Chicago-Milwaukee corridor.

HTTP: Hypertext Transfer Protocol. It is a standard method of transferring data between a Web server and a Web browser.

Latency: The difference between the time the traffic flow is perturbed as a result of a change in traffic conditions and the time that the change in speed is reported in the traffic data.

Link Definition: Link definition is based on logical breaks in facilities and is additionally defined as a segment that has two discrete end points where one would expect the potential for differing traffic conditions, such as at an interchange or major at-grade intersection.

MDOT: The Michigan Department of Transportation

MI Drive: MDOT’s traveler information web site (www.michigan.gov/drive).

Michigan Geographic Framework: GIS base map standard for the State of Michigan. The framework is accessible via www.michigan.gov/cgi.

RCOC: Road Commission for Oakland County

Reliability: the ability of the system to produce traffic data estimates consistently for each link at all times.

ROW: Right of Way

Speed: For the purposes of this RFP, speed is explicitly defined as the space mean speed over the specified segment or link.

Subcontractor: means a company to which the contractor delegates the performance of a portion of the Services, but does not include independent Contractors engaged by the Contractor solely in a staff augmentation role.

Subscription Based Services: These are defined as any services to include the delivery of data which the State pays a recurring fee for.

XML: Stands for Extensible Markup Language, a widely accepted way of sharing information over the Internet in a way that computers can use, regardless of their operating system.